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MEMORANDUM

To: Kent Morgan & David Cary, City of Lincoln

From: Thomas Brennan, Nelson\Nygaard

Date: October 8, 2004

Subject: Downtown Shuttle Operations and Transit Facilities

Overview

A key element of the Downtown Master Plan is the downtown transit and shuttle services plan. This effort involves the review of existing downtown transit and shuttle services and the development of a downtown shuttle circulator program. A successful shuttle program must be integrated with current and planned land use concepts and support the economic development, parking and multi-modal circulation goals of the downtown.

This memo provides a brief overview of existing transit services in downtown Lincoln and provides preliminary recommendations for shuttle operation and facility improvements.

Shuttle Operations

Existing System

Downtown Lincoln is currently served by a daytime shuttle operated by StarTran. The "StarShuttle" operates from 9:30 a.m. to 5:00 p.m. each weekday, providing convenient midday service, but failing to serve most commuters, shift workers or any evening entertainment trips. Many of the current shuttle riders are UNL students whose class schedules allow them to travel to school and back during the midday. The route, which operates at 12-minute headways, serves the Downtown area from approximately 10th Street to 18th Street and from 'R' Street to 'G' Street.

StarTran provides fixed route transit services throughout Lincoln. These services are designed around a hub-and-spoke system, with the primary transfer function occurring in the downtown at 11th and 'O'. All the downtown routes currently travel a "downtown loop" allowing passengers to board or alight at multiple points in the downtown without requiring them to transfer. While

this is convenient for some passengers, it adds to travel times for others and increases total revenue service hours for several routes, adding to system wide operating costs.

The StarShuttle is operated with standard StarTran coaches. The only feature that identifies the shuttle from other local bus services is the reader board (overhead sign). During our site visit in August we viewed multiple reader board messages on shuttle buses. This can be very confusing to passengers who are already faced with the challenge of identifying the shuttle from the many other StarTran buses operating in the downtown.

Ridership on the StarShuttle is modest. During Fiscal Year 2003-04 the shuttle carried just over 60,000 passengers or an average of 250 daily boardings. This level of ridership marks a two percent decrease from the previous year. This represents a total of 14 passengers per hour. The productivity of the shuttle route was down by over 20 percent, caused by a service extension on the west side of downtown. Productivity on the StarShuttle is just slightly higher than the systemwide average of 13 passengers per hour. However, shuttle productivity should to be evaluated in the context of the level of service provided on the shuttle relative to other fixed route services. Few other StarTran routes run as frequently or in as dense an environment as the shuttle, two factors that typically drive transit ridership.

Currently, the most productive stops on the StarShuttle are at the 11th and O transit facility and at the south edge of downtown where neighborhood residents can access the service to travel to downtown or the University. In other words the most important function of the route may be that of a very short local line connecting neighborhood residents to key downtown area destinations and other StarTran services.

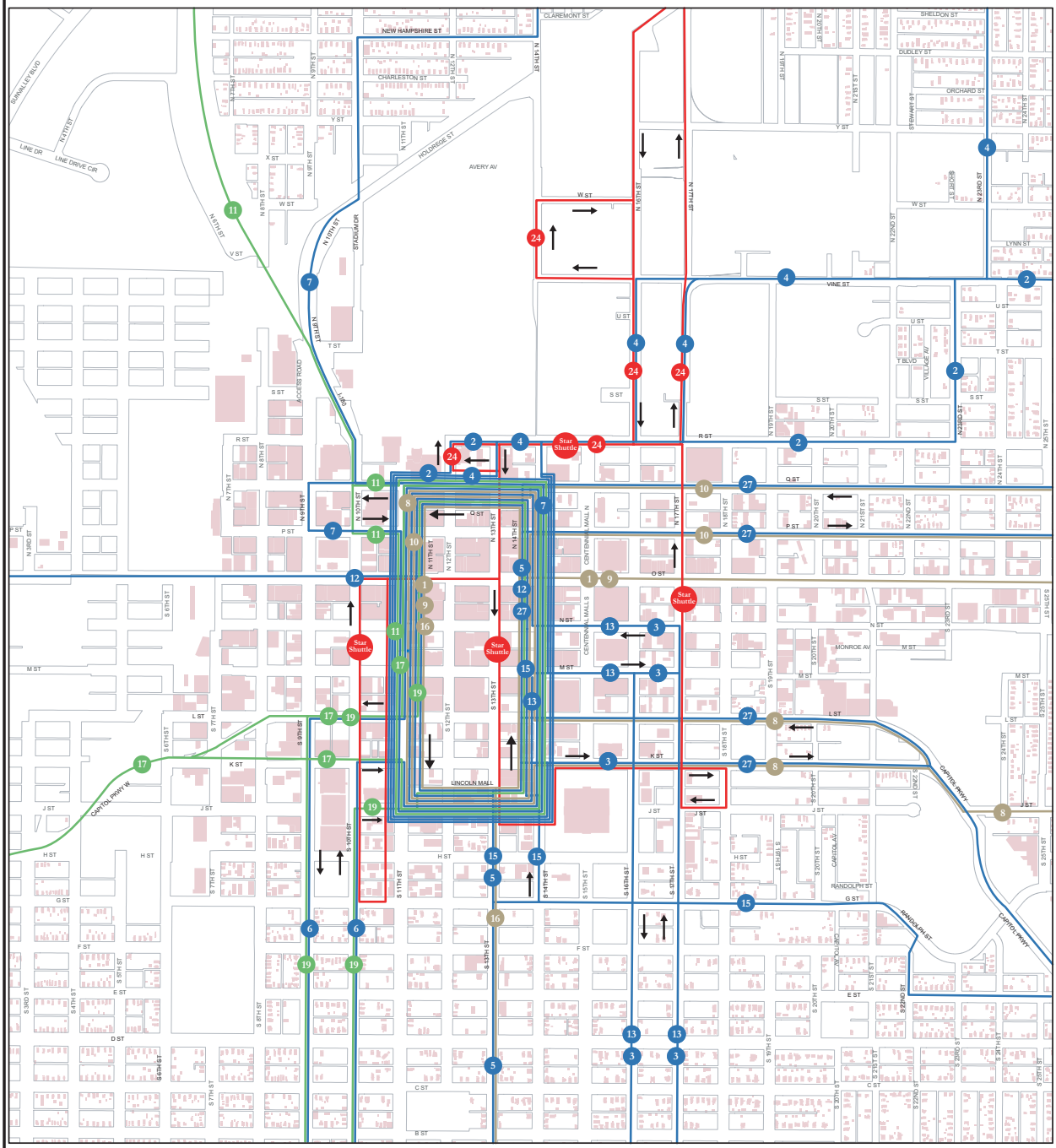
The following tables shows daily boarding activity at key shuttle stops:

Street	Cross Street	Average Daily Boardings
11th	N	42
G	10th	24
J	17th	24
13th	Q	18
13th	O	14
11th	0	10
All other stops have less than 10 daily boardings		

The map on the following page illustrates the StarShuttle route, as well as the StarTran local bus routes.

DOWNTOWN BUS ROUTES
Lincoln Downtown Master Plan

NORTH



Legend

Weekday Bus Routes
(by midday frequencies)

- 12 - 15 Minutes
- 55 - 65 Minutes
- 70 - 75 Minutes
- Over 75 Minutes

- Public Right-Of-Way
- Buildings

600 0 1,200 feet

Data Source: Lincoln-Lancaster Co. Planning Dept., City of Lincoln Star Tran Mapping: Nelson\Nygaard Consulting Associates and Real Urban Geographics

Downtown Master Plan Workshop #1

During the first public workshop for the Downtown Master Plan, downtown shuttle issues were addressed briefly and residents in attendance had a chance to respond verbally and via the public comment form. Four key issues emerged from public comment about downtown shuttle service:

1. A need **to redesign the downtown shuttle routes** to provide more relevant service to downtown transit generators. A number of people suggested the need for service connecting the Haymarket with the core business district, the University and the Capitol.
2. **Route frequency and hours of service** qualified as the second major concern among respondents. People indicated that service hours on the existing shuttle are too limited to be useful for daytime commuters or for evening entertainment trips. A desire to connect downtown retail, restaurant and entertainment sites in the evening was a strong theme. Many people stressed that high frequency service was a crucial to the success of a downtown shuttle system.
3. **Simplicity, legibility and ease of use**. A range of comments were heard regarding the need to simplify the route structure and create a marketing or branding campaign that clearly identifies the shuttle from other local bus services traveling through downtown. Residents suggested that a unique local or Nebraska based marketing theme or brand, such as "Ride the Bull," could be employed to clearly identify downtown shuttle routes.
4. **Improve appearance of buses and facilities**. Workshop participants commented that existing StarShuttle vehicles and downtown stops, particularly the 11th and O transfer facility, were very unattractive and do nothing to encourage ridership on the shuttle system. Many participants felt that a high level of investment needs to be made in on-street facilities that improve the Downtown and set the shuttle apart as a crucial element of downtown infrastructure rather than anther bus route.

Proposed Downtown Shuttle System

This memorandum provides a proposal for revisions to downtown Lincoln shuttle services. The service proposal is designed for implementation in the next two years and includes extensions that become relevant when Master Plan land use goals are achieved.

Guiding Principles of Service Design

A number of key principles are applied to the design of proposed shuttle services.

- **Routes that are simple, straight and easy to understand.** A factor that sets rail circulators apart from those operated with standard rubber-tired buses is the directness and legibility created by in-street tracks and more developed facilities. These factors have been shown to create a ridership premium that buses typically do not achieve. However, bus shuttle systems can take a lesson from rail by creating simple, straight routings that are highly visible and have a unique look and feel distinguishing them from the local bus system.
- **Service to multiple markets.** Most successful shuttle routes do not serve a single market, but provide a useful service to a range passenger types (students, commuters, seniors,

etc.), who require travel to a range of destinations along the route and demand travel at various time of day.

- **Convenient, fast transfers to local bus routes**. Since there are a limited number of residents in the Downtown, shuttle passengers are likely to have ridden another bus or driven to Downtown. Providing easy, well-timed and frequent connections to StarTran local bus routes is crucial to the success of a downtown shuttle. This is proposed through the siting of a new Downtown Transit Center at Q and 14th.
- **Focus on two-way service where possible**, so that transit is competitive for a trip in both directions. Even within a relatively small area, such as the downtown, one-way loops discourage passengers who wish to travel in both directions.
- **Investment in frequent service**. The StarShuttle already runs approximately every 12 minutes, the highest frequency of any route in the system. We recommend that this level of service or higher be maintained.
- **Service at regular intervals**. Second only to frequency, reliability is a crucial element of a successful circulator service. By creating schedules that have even, easy to remember intervals (i.e., a bus every 10 minutes), passengers will never need to consult a schedule.
- **Simplicity in service design**, so the routes are easy to learn, not just for trips that are made routinely, but for occasional users and visitors.
- **Individual shuttle route branding** is needed to distinguish the downtown system from other StarTran local bus services. This could include a separate name, logo, paint scheme, signage, on-street facilities, and vehicle fleet.

Evening Entertainment Shuttle

The City has specifically requested the Downtown Master Plan explore the feasibility of an evening entertainment shuttle. The concept behind this service, as suggested by a Mayor's task force, would be to provide connections between key downtown entertainment venues, shops, movie theaters, hotels and restaurants and to connect to key public parking facilities. Our experience shows that downtown shuttles designed to serve parking structures are largely ineffective. Successful shuttles do often service parking facilities, but only by virtue of their location near major activity centers or pedestrian thoroughfares. In Lincoln, many of the major downtown parking facilities fall within two blocks of the key north-south (13th/14th) and east-west (P/Q) corridors served by the proposed shuttle system. However, the proposed shuttle services do not deviate to serve the "front door" of downtown parking garages.

A successful route should be integrated into the street system serving corridors where pedestrian activity is already high. The success of any downtown circulation system is its ability to be competitive for a variety of short distance trips, serving both regular passengers and occasional users. Sites that have very irregular demand, such as the Pershing Center, do not justify shuttle service, unless they can be served en route between other key demand generators. On the current service, the closest stop to the Pershing Center averages two passenger boardings per day.

We do not recommend that the City implement a separate evening shuttle program; rather, we have developed a shuttle route that serves multiple markets throughout the day, including an evening entertainment market.

Proposed Downtown Shuttle Services

Proposed downtown shuttle services are designed to replace the existing StarShuttle and are based on the relocation of the downtown transfer function to Q Street, at one of the two locations described below. The proposal also assumes that StarTran local bus routes are restructured to meet in a timed transfer at the new Q Street Transit Center (see below), eliminating the existing downtown transit loop and the antiquated transfer center at 11th and O. *(A separate proposal for reorganization of downtown transit routing will be presented to staff. A restructuring of StarTran's local route system is not part of the Master Plan scope; however, a complete system restructuring should be considered before service changes are implemented. The restructuring of downtown services would provide an excellent opportunity to redesign the entire system, which has not been updated to match land-use development patterns in a number of years).*

Two downtown shuttle routes are proposed. The two routes would meet at a timed connection at the Q Street Transit Center where passenger could transfer between the two routes or connect to other local bus routes.

Shuttle Route A

Shuttle Route A connects two major destinations to Lincoln's core downtown business district:

(1) **The Haymarket District**, which has become a top dining and entertainment site in the community. This shuttle will also come within one to two blocks of two major parking garages located in this area. Pedestrian connections to the baseball stadium also feed into this area, providing a connection to downtown for people attending sporting events.

(2) **UNL campus via 16th and 17th**. While UNL is served by the campus shuttle and StarTran bus routes, there is currently no frequent shuttle service that connects the campus to downtown and the Haymarket District. The proposed route penetrates the downtown campus on its east side via 16th and 17th. This routing provides frequent service to a concentration of student housing in the 16th and Vine area. College students are already accustomed to using shuttle services and often have a range of economic and social reasons for using transit. Providing a convenient and attractive link between the campus, downtown and the Haymarket serves the goal of developing retail markets by encouraging a key customer demographic to travel into these areas.

From a western terminus at 8th Street, Shuttle Route A runs eastbound on P, turning north at 17th to Vine. At Vine the route turns west, enters the campus looping 14th and returning southbound to Q on 16th. The route stops at the proposed Q Street Transit Center on its westbound leg. On this routing the shuttle comes within a block of several major residents halls, including Cather/Pound Neihardt, Cornhusker Courtyards, Othmer Hall, Nebraska Hall and Abel/Sandoz. Other residential development is also underway in this area.

A future extension of Shuttle Route A is proposed south of the Haymarket District. The Downtown Master Plan concepts have identified the area south of O, west of 9th and North of J as a target for future high-density development. As this development occurs Route A could easily be extended south to J to provide frequent service to residents of this area. Route A's connection to the UNL could make housing in this area attractive to students, staff and faculty at the University.

The shuttle route is not designed to replace UNL's campus circulation shuttle system.

Shuttle Route B

Shuttle Route B is designed to connect government and office employment in south downtown to the core business district and the Q Street Transit Center. This route would continue to provide frequent service to residents in lower-income neighborhoods south of H Street, an important market for the existing StarShuttle. Because this route primarily serves an employee and residential market, it can operate fewer hours. This route was intentionally designed as a separate service from Route A, which should create demand for a longer service day.

From the Q Street Transit Center, Route B runs southbound on 13th to H, traveling through the heart of the downtown business district and within one block of the Capitol. At H the route turns west to 10th where it makes a small terminus loop in front of the City/County Building. Returning eastbound on H the route turns north on 14th returning to the Q Street Transit Center.

When compared with existing service, this proposed north-south route eliminates some service on the west side of downtown and a northbound segment on the eastside, in favor of a single single north-south connection on 13th/14th. Neither of the eliminated route segments have significant boarding or alighting activity, with the exception of the 11th and 0 transfer center, which is proposed for relocation.

A future extension to this route is proposed to connect the Antelope Valley to downtown. Since this market is not strongly connected to the south downtown markets served by this route, this extension could be its own route. We propose that it be a through-route extension of Route B, as this will provide a single-seat ride for passengers riding between south downtown and the Antelope Valley without penalizing other passengers. However, this extension could also be considered as an alternating extension of Route A, providing a direct connection between the Antelope Valley, the downtown business district and the Haymarket District. Alternating trips would serve UNL and Antelope Valley.

The following table provides detail of operating and capital recommendations for the proposed shuttle services.

	Shuttle Route A	**Shuttle Route B**
Hours of Operation	8:00 am to 12:00 am This route serves a range of daytime and evening markets. Service until midnight allows downtown diners and theater goers to use the service. The City may want to consider entering discussion with the University to fund later evening service to provide a "safe ride home" for students frequenting downtown bars. The City may want to consider reducing evening hours Sunday through Wednesday.	7:00 am to 7:00 pm This route serves employee and residential markets. Service should be available for employees working past 5:00, but no late evening service is needed.

Service Levels (Headways)	Every 10 Minutes	Every 10 Minutes
Days of Service	7 Days Per Week	Monday through Friday
Vehicles	30+ Passenger	30+ Passenger
	Shuttle routes could use existing fleet coaches. However, the City should consider acquiring a separate vehicle fleet for shuttle routes. Electric or hybrid vehicles could help the City create an eco-friendly marketing campaign for the shuttle. Unique bus wraps can be used to identify shuttle vehicles from other StarTran services.	
On Street Facilities	Shelter and bench at every shuttle stop.	Shelter and bench at every shuttle stop.
	A unique shelter design should be considered for downtown shuttle stops. Designs could be integrated with local business districts or historic themes.	
Signage	Unique sign for Shuttle at every stop	Unique sign for Shuttle at every stop
Fares	Fare Free	Fare Free
	The current shuttle fare is $0.25. It is often cheaper to provide free fares than to collect such minimal fares. A fare free downtown service would also provide an excellent marketing tool that could help to bring more passengers on to the transit system. The City should focus on other revenue generating opportunity such as downtown advertising, local improvement districts or university partnerships in place of the minimal fare revenue it collects.	

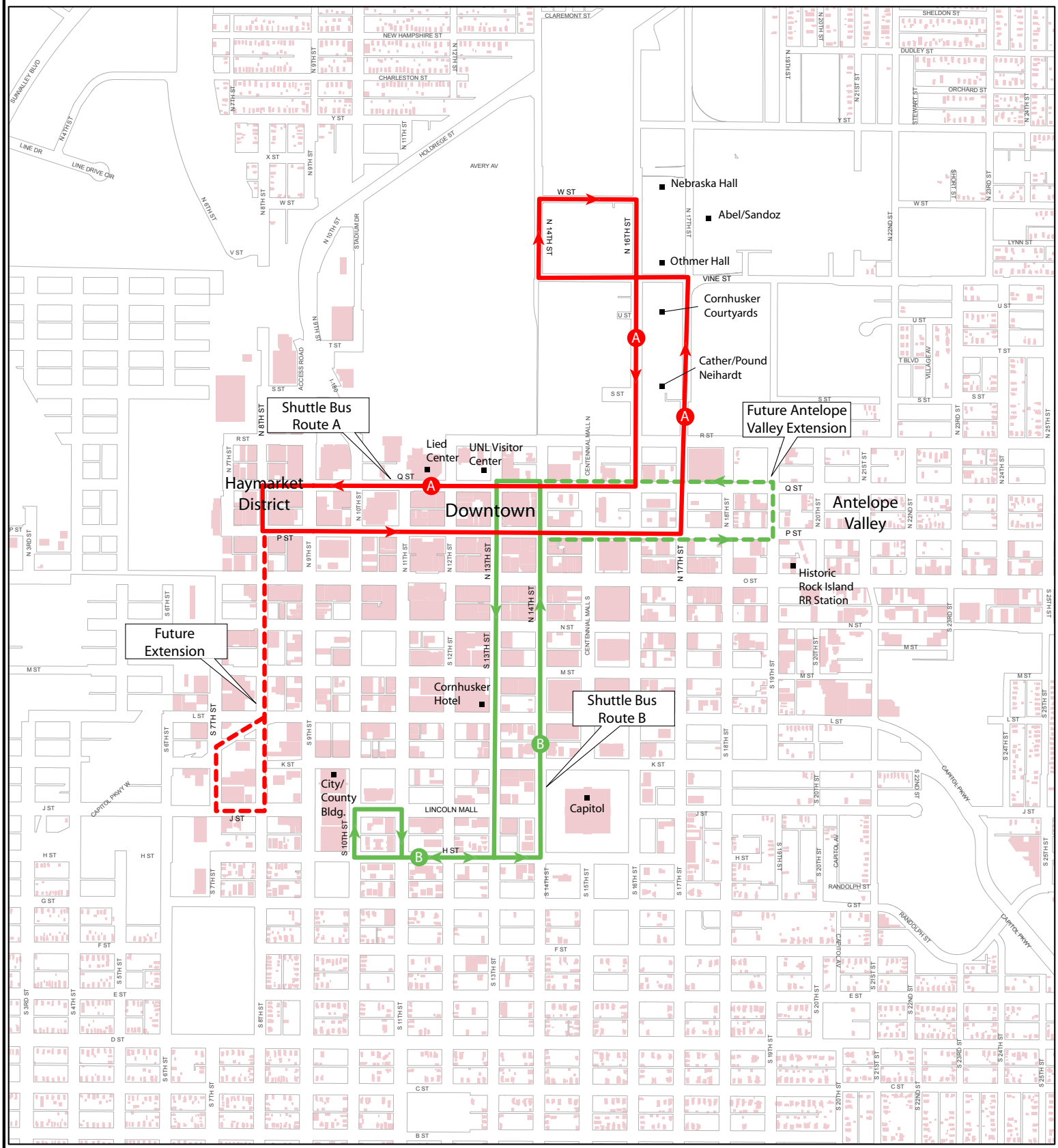
Ridership Potential

Developing a route level ridership projections for the proposed shuttle services would require stop-by-stop boarding data for each of the current Star Trans routes serving the downtown. In the absence of this data, we can make an estimation of ridership potential based on market factors and peer data. We are currently working on collecting data from and interviewing staff at peer cities that operate downtown shuttle services.

Once this review is complete we will update this memo to share our results and provide further analysis of potential ridership on the proposed system.

PROPOSED DOWNTOWN SHUTTLE SYSTEM

Lincoln Downtown Master Plan



Legend

- Shuttle Bus Route A
- Future Extension
- Shuttle Bus Route B
- Future Antelope Valley Extension
- Public Right-Of-Way
- Buildings

600 0 1,200 feet

Data Source: Lincoln-Lancaster Co. Planning Dept. Mapping: Nelson\Nygaard Consulting Associates and Real Urban Geographics

Future Downtown Streetcar Service

As a longer-term alternative (5 to 20 years) we recommend that the city consider a rail streetcar circulator connecting key destinations east-west through downtown. This system could employ modern streetcar vehicles, such as the one used in Portland, Oregon (see below) or vintage vehicles (new or restored) such as those used in Memphis, Tennessee (also see below).

Modern Skoda Streetcar vehicle in operation in Portland, Oregon and historic streetcar in operating on Memphis, Tennessee.

Streetcars were once ubiquitous in large American cities. However, extensive streetcar networks were largely abandoned in the postwar rush to the automobile. Most streetcar lines were originally built by developers, who organized their new communities around the availability of a "modern" high capacity transit system. Today many of the basic community and economic development principles that fueled the development of early streetcar lines are being revived. A focus on street-front retail, development of core city retail and services, restored demand for close-in pedestrian friendly mixed-use neighborhoods and convenient access to transportation are among the factors that have restored interest in streetcar transit.

A transportation system that supports core retail and entertainments services in Lincoln and is attractive to a wide range of residents and visitors is crucial to a successful downtown redevelopment strategy. Streetcar should be considered for several reasons:

1. **Fixed rail attracts development.** Rail systems have demonstrated their value as catalysts for new development. Fixed rail lines are often followed by private investment in housing, commercial and retail buildings.

   A number of cities with recent streetcar investments credit the streetcar with catalyzing development in infill neighborhoods. It is impossible to know whether development would have happened at the same pace without the streetcar investment, but it appears that the streetcar line provided a "focus" which organized development and assured the transit focus of new development along and spreading out from the streetcar corridor. The permanence of rail can be a convincing factor in influencing developers, residents and businesses that a location is attractive enough to invest in. It is argued that the presence of streetcars has been a factor in successful central city development in Toronto, San Francisco's South Beach, Memphis' downtown, and Portland's Pearl District.

2. **Developers are often willing to participate in financing**: In Portland and other cities, developers were willing to "tax themselves" either through fees, benefit districts, or other forms of exaction to receive the benefits of a fixed streetcar system. There is no similar relationship between developers and buses. In fact, developers often oppose the facilities needed to run a reliable bus network, or relegate them to the "back door" of their development.

3. **Streetcars Attract Tourists and "Occasional Riders":** With streetcars, a particular market for "choice" riders is tourists. In places like Memphis these riders are particularly important, and they are probably at least somewhat important in most urban settings. As cities continue to evolve as cultural, recreational, and convention centers, the needs of tourists become an ever more important concern in planning the city's transit infrastructure. Rail systems in general, and vintage streetcar systems in particular have many advantages that tourist's value.

4. **Streetcars and rail also have a legibility, which makes them much less confusing to use than a bus for the casual user**. If there is one vintage trolley line connection several prime downtown destinations, it is very easy to use compared to knowing which bus (is it the 21 or the 33?) will get you to where you want to go. Most bus maps are very difficult for casual users like tourists to understand since a number of buses branching to all parts of the community converge in and disperse from downtown.

Based on the experiences in other cities, streetcar investments are most appropriate when some or all of the following conditions can be met:

1. **Demand for relatively short trips where speed is not a critical factor.** Streetcars are an especially good application for point-to-point trips in a mixed-use downtown. These trips do not necessarily need to be fast, because the distances are not great, and there may be no time advantage to using a faster mode because of the greater distances between stops. In cities where streetcars have replaced bus routes, ridership gains of 15 to 50 percent have been realized. In some cases gains have been even higher.

2. **Demand for high frequency service, but without the capacity demands required for Light Rail Train Systems.** Streetcars are generally not "connected" into trains, and therefore do not offer the high capacity of a multi-unit light rail train. Streetcars can offer a convenient frequent service, allowing riders to expect a vehicle to arrive within a few minutes of their arrival at the stop. Streetcar systems operating around the country run no less frequent than every 15 minutes.

3. **Desire to accelerate planned development.** A streetcar alone cannot catalyze development in an area that does not meet the economic criteria for change. However, in areas that are likely to develop a streetcar can accelerate and organize the development, ensuring that development will be transit oriented from the start.

4. **Developers willing to contribute to the success of the streetcar.** Developers who are willing to participate in all aspects of the streetcar, especially in its financing,

will be more willing to ensure its success and to ensure that development is oriented to take advantage of the streetcar infrastructure.

5. **Mixed uses or a variety of markets**. Streetcars are especially good at combining user markets on a single line, rather than being focused on longer commute trips. Short workday trips can be combined with tourist or casual users on the same system.

6. **Presence of tourists or occasional users.** For the reasons described above, streetcars encourage visitors or other occasional users to take transit, especially if it connects local and regional destinations.

7. **Lack of extreme congestion on streetcar streets.** Where streetcars operate in mixed traffic, reliability will be vastly improved if there is less congestion on the street and limited opportunities for traffic to impede the flow of the streetcar.

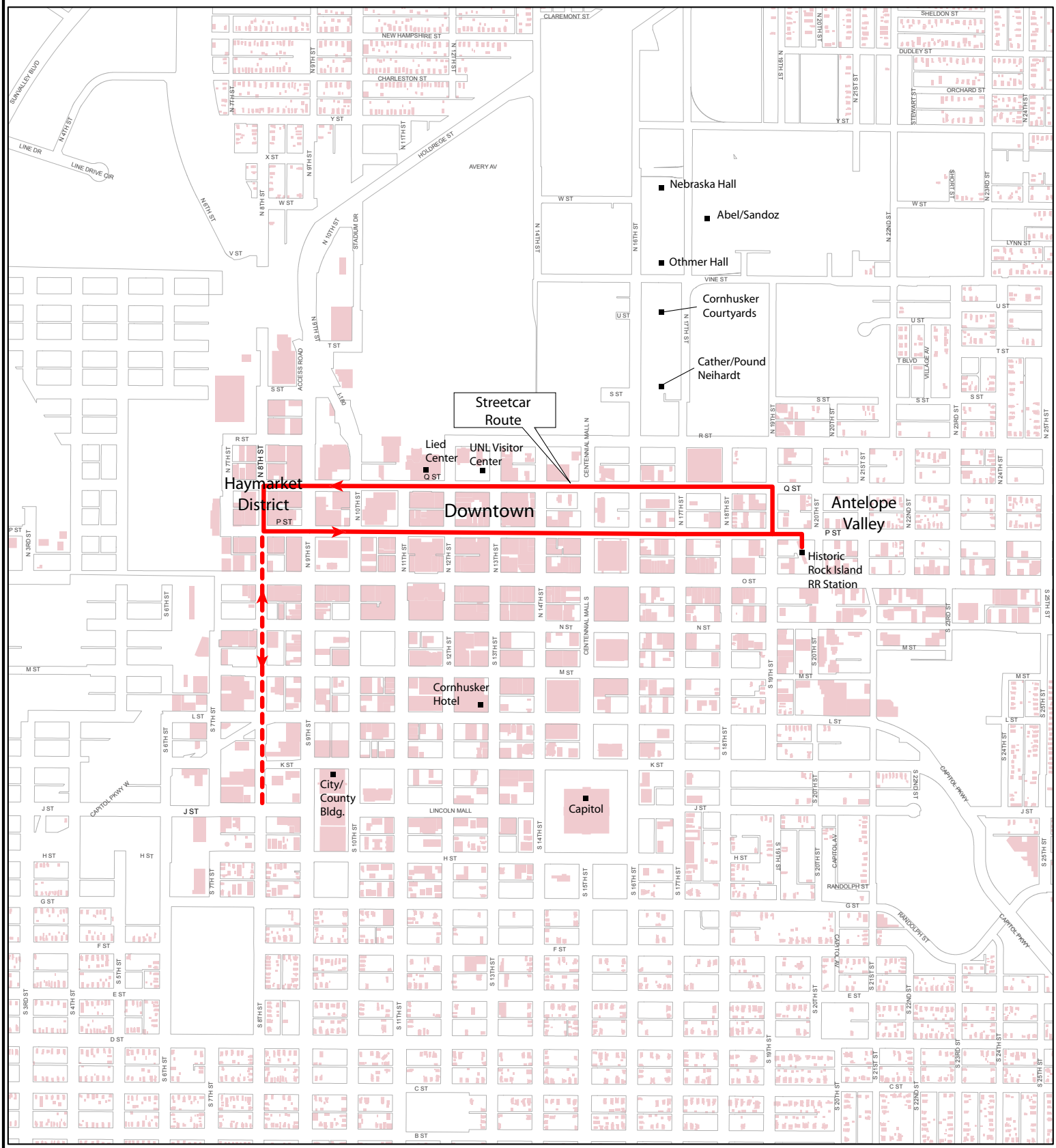
Proposed Streetcar Service

The figure on the following page provides a map of the proposed streetcar starter line. This basic east-west line would connect the Haymarket District with Downtown, operating on the P & Q couplet. This would provide service through the heart of the downtown retail and entertainment district. Continuing east the line would enter the Antelope Valley and terminate at the Historic Rock Island Railroad Station. This facility provides an excellent opportunity to maintain the historic significance of this site while creating a functional use as the streetcar maintenance and storage facility. Many cities have incorporate streetcar maintenance facilities into historic rail facilities, creating visitor centers or small rail museums that share historic information and often become a tourist destination.

An 8th Street extension is proposed south of the Haymarket District to serve an area designated as high density housing in the Master Plan concepts. This extension is dependent on the adoption of a final land-use strategy and the rezoning of this area.

PROPOSED FUTURE STREETCAR SYSTEM

Lincoln Downtown Master Plan



Data Source: Lincoln-Lancaster Co. Planning Dept. Mapping: Nelson\Nygaard Consulting Associates and Real Urban Geographics

Downtown Transit Center

The City of Lincoln has begun preliminary discussion and analysis on the siting of a multi-modal transportation center in its downtown. The center would be designed to serve StarTran and other bus service and to enhance transit use, bicycle use, and pedestrian activity into and within downtown. The City plans to pursue funding for this facility, likely in the form of a Congressional earmark. This effort must be integrated with broader land use and transportation strategies addressed in the Downtown Master Plan as well as with any long term adjustments to StarTran route services.

A multi-modal transportation center should accomplish several things:

1. Provide convenient and safe transfer opportunities for StarTran passengers changing routes downtown;
2. Provide a close connection to the UNL shuttle system which operates one block north on R;
3. Provide convenient access to the CBD, UNL and other major trip generators in the downtown area;
4. Provide a high level amenity for local StarTran transit users;
5. Provide good pedestrian connectivity;
6. Provide access and safe storage for bicyclists;
7. Provide quality public information about StarTran and other alternative mode service options.

Nelson\Nygaard and Crandall Arambula will examine opportunities to integrate other uses with the downtown transit center. This should include, at minimum, a coffee shop, café or other supporting retail, and could include office, commercial, and even residential uses, along with parking services.

The map on the following page provides a map of the two proposed facility locations. The development of either site is predicated on the following assumptions:

1. Transit operations in downtown Lincoln are restructured, eliminating the existing downtown loop and directing inbound and outbound radial routes to the downtown transit center on the most direct and logical route.
2. A frequent downtown shuttle service is implemented that handles intra-downtown circulation function (see proposal above).
3. Centennial Mall becomes a two-way traffic-carrying street between O and Q.

DOWNTOWN TRANSIT & MULTIMODAL CENTER OPTIONS

NORTH

Lincoln Downtown Master Plan

Legend

Public Right-Of-Way

Buildings

300 0 600 feet

Option 1: On-Street Facility with Off-Street Waiting Area and Supporting Retail

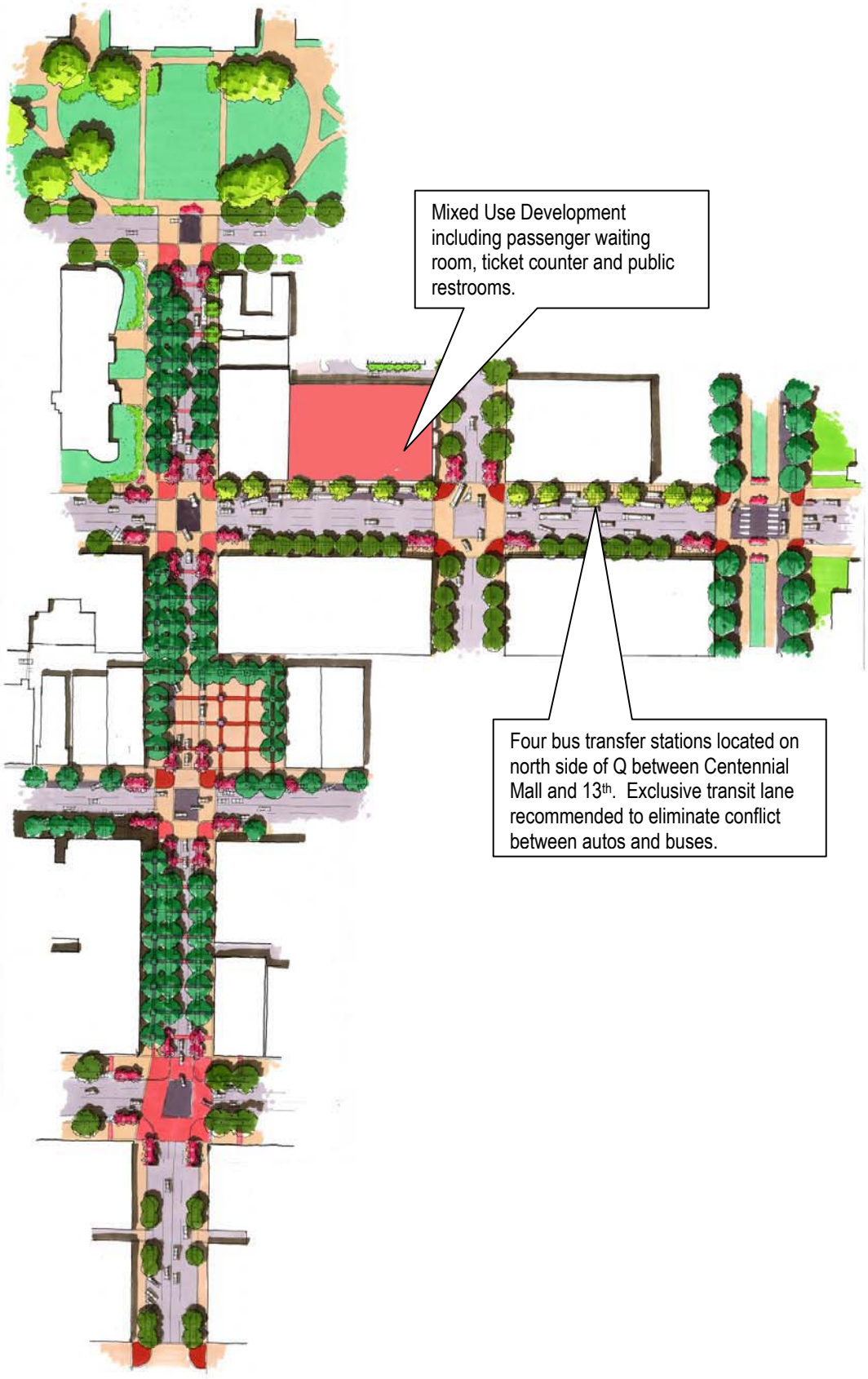
This option calls for an on-street transfer facility with stops located on the north block faces of Q between Centennial Mall and 13th. All or a portion of the north block face between 13th and 12th could be used for expansion bays. In order to accommodate buses at this facility, buses would use a nose-to-tail pull out configuration as apposed to having set bays for each route. In this format, all existing routes can be accommodated during the peak pulse time using just two block faces. Since Q is a one-way street, using a designated bay format would require the extension of the facility further west, forcing transferring passengers to walk farther between routes. Four key transfer sites would be designated - two on each block – and routes would be organized geographically. For example, all routes serving west Lincoln may stop at the westernmost shelter location, since these routes will be continuing west of south on 11th.

On-street transit centers are often associated with dead-zones or heavily disinvested areas in American downtowns. While many older facilities suffer from poor urban design and planning, there are a number of new on-street facilities that integrate well with the downtowns they serve. The pictures show Boise, Idaho's main downtown retail street, a vital shopping and restaurant street that also has a dedicated bus lane and an on-street transfer facility that acts as the system's primary transfer point.

These pictures show Boise's downtown transfer facility located on the north side of Idaho Street in the heart of the City's downtown business district. High-end shelters and street trees help to blend the transit function into the existing streetscape. A bus only lane minimizes conflict between automobile and bus traffic.

The following diagram is a concept drawing of Q Street between the Centennial Mall and 13th. The proposed on-street transit center uses the north side of Q between these two north-south streets and the red structure is a proposed mixed-use facility, which will include approximately 7,000 square feet for an off-street passenger waiting area and ticket counter, restrooms and supporting retail.

Conceptual Drawing of Q Street with On Street Transfer Center



This facility would require the widening of sidewalks along the two north block faces of Q between Centennial Mall and 13th to accommodate new shelters. Additionally, the proposed facility would include an off-street component on the northwest corner of Q and 14th. This lot, home to a fast food restaurant, has excellent potential for a mixed-use facility that would include a passenger waiting room, ticket and information counter and supporting retail on its ground floor. Bike lockers, a driver break room and passenger and driver restrooms would also be included in this facility.

Option 2: Off-Street Facility with Waiting Area and Supporting Retail

This option calls for the development of an off-street transfer facility on the north half of the block bounded by the Centennial Mall, P, 13th and Q. In order to accommodate projected bus volumes, the facility would also need to use some on-street capacity on Q. Since traffic direction is westbound on this street, buses would either need to use the north side or a traffic lane would need to be eliminated on the south side to accommodate a pullout with a right hand loading platform.

The following table provides an estimate of the square footage needed to accommodate existing and projected bus transfer needs in downtown Lincoln. An estimated 19 bays are needed to accommodate current fleet plus reasonable system expansion. The table looks at two options: (1) in the first all buses are accommodated off-street and (2) in the second five bays use existing on-street right-of-way. Only the configuration with some bay capacity on street would be feasible at the recommended site.

On Street Bays	On Street Bays	Total Bays	Estimated Sq. Ft. Per Bay*	Total Footprint (Square Feet)
Fully Off-Street Configuration				
19	0	19	4,600	87,400
Off-Street Configuration with Some On-Street Bays				
5	14	19	4,600	64,400

*** Includes 10,000 total square feet for passenger facilities, ticket counter and restrooms.**

Built at ground level, an off-street facility would eliminate two vital downtown block faces. Due to the height and emissions of buses, it is difficult to cap such a facility for use as parking or mixed-use office or commercial. While it would be necessary to accommodate a small ground level building for a passenger waiting area, this site does not provide significant opportunity for mixed use or joint development. The following picture provides an example of a well-designed off-street transit center in downtown Salem, Oregon.

These pictures show the Courthouse Transit Center in downtown Salem, Oregon. The site was developed as a joint development between the transit district and Marion County. A half block, open air transfer facility acts as the hub for local transit routes, while the adjacent mixed use building houses transit district and county offices as well as a passenger waiting area, ticket booth, information window, public restrooms and ground floor retail establishments.